

EMS-CHEMIE AG

Patent claims

5 1. Polyamide moulding material for highly glossy,
rigid polyamide moulded bodies containing

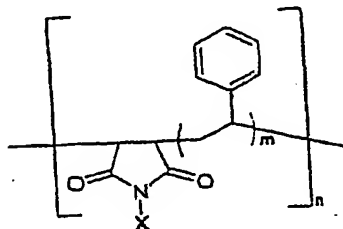
A) 100 parts of a polyamide mixture made of

10 a) 0.5-95% by weight of a semicrystalline
linear polyamide,

b) 5-99% by weight of a branched graft
polyamide

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b.1.) made of a styrene maleinimide basic
structure of the general formula 1



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-m standing for 1-5 and -n for 3-15, and the
molecular weight of the basic structure unit be-
ing between 600 and 9000 g/mol and polyamine
acid chains are grafted on at the position X
and/or

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b.2.) obtained via hydrolytic polymerisation
of amino acids and/or lactams as basic
building blocks, where components with
a branching effect being added to the
melt of the basic building blocks in

the following compositions:

5 b.2.1.) 5-150 $\mu\text{mol/g}$ of the polymer of an at
least tri-functional monomer comprising an amine or a carboxylic acid,
and

10 b.2.2.) 2-100 $\mu\text{mol/g}$ of the polymer of an at
least bi-functional monomer comprising
a carboxylic acid, if b.2.1.) is an
amine, or comprising an amine, if
b.2.1.) is a carboxylic acid,

15 c) 0.5-40% by weight of an amorphous polyamide
and

20 d) 0-2% by weight of carbon black,
a + b + c + d together producing 100% by
weight and

B) 40-235 parts reinforcing materials and

25 C) additives normal for polyamide moulding
materials.

30 2. Polyamide moulding material according to claim
1, characterised in that the polyamide mixture
A) contains 0.5-80% by weight of the semicrys-
talline linear polyamide a), 15-98.5% by weight
of the branched graft polyamide b), 1-35% by
weight of amorphous polyamide c) and 0-2% by
weight of carbon black d).

35 3. Polyamide moulding material according to claim
2, characterised in that it contains 1-64.5% by

weight of the semicrystalline linear polyamide a), 18-79.5% by weight of the branched graft polyamide b), 20-35% by weight of amorphous polyamide c) and 0.5-2% by weight of carbon black d).

4. Polyamide moulding material according to one of the claims 1 to 3, characterised in that it has, at processing temperatures, melt viscosities with shear rates of $\dot{\gamma} = 200/\text{s} < 300 \text{ Pas}$ and at $\dot{\gamma} = 1000 \text{ s} < 150 \text{ Pas}$.

5. Polyamide moulding material according to at least one of the claims 1 to 4, characterised in that the semicrystalline linear polyamide a) is selected from PA6, PA66, PA12, PA6T, PA6T12, PA12T, whereas the terephthalic acid (T) could be replaced partially by isophthalic acid (I) or adipinic acid or mixtures thereof.

6. Polyamide moulding material according to at least one of the claims 1 to 5, characterised in that graft polyamides b) are used, which are derived from PA6, PA11, PA12 and have more than 3 arms.

7. Polyamide moulding material according to at least one of the claims 1 to 6, characterised in that the graft polyamides b) have a relative viscosity (1% in H_2SO_4 , 23°C) < 2.2 and a melt viscosity ($\dot{\gamma} = 500/\text{s}$) $< 50 \text{ Pas}$ 30°C above the melting temperature.

8. Polyamide moulding material according to claim 7, characterised in that the graft polyamide b) contains inherent slip additives such as for ex-

ample long-chained n-alkylenes.

- 5 9. Polyamide moulding material according to one of the claims 1 to 8, characterised in that the graft polyamides b) have a molecular weight distribution (GPC/standard polystyrene) which corresponds approximately to the distribution of the semicrystalline polyamide a).
- 10 10. Polyamide moulding material according to at least one of the claims 1 to 9, characterised in that the amorphous polyamide c) is selected from PA MACM12, PA PACM12 or mixtures/copolyamides thereof and PA6I, PAMXDI, PA 6I/MXDI, whereas
15 isophthalic acid (I) could be replaced partially by terephthalic acid (T) or adipinic acid and MXDA partially by PXDA.
- 20 11. Polyamide moulding material according to claim 10, characterised in that the amorphous polyamide c) is selected from PA6I/6T and or PAMXDI/MXDT/6I/6T.
- 25 12. Polyamide moulding material according to at least one of the claims 1 to 11, characterised in that the reinforcing materials B) are selected from glass fibres, carbon fibres, minerals such as talc, mica, kaolin, wollastonite, nanocomposites, whiskers and further reinforcing
30 materials which are common for polyamide or mixtures thereof.
- 35 13. Polyamide moulding material according to at least one of the claims 1 to 12, characterised in that the polyamide moulding material A) contains common additives C).

- 5 14. Polyamide moulding material according to claim
 13, characterised in that the additives C) are
 selected from impact strength modifiers, UV-,
 heat- and processing stabilisers and slip addi-
 tives which can also be contained inherently in
 the graft polyamide.
- 10 15. Moulded articles produced with moulding materi-
 als according to at least one of the claims 1 to
 14, characterised in that the moulded articles
 have an outstanding surface quality, expressed
 by the surface gloss at an angle of 60°, greater
 than 75.
- 15 16. Use of the polyamide moulding materials accord-
 ing to at least one of the claims 1 to 15, for
 producing moulded articles by processing methods
 such as injection moulding, extrusion, extrusion
20 blow- moulding, GIT, WIT, micro-injection mould-
 ing, injection blowing, pultrusion, deep drawing
 or further processing methods which are suitable
 for polyamides.
- 25 17. Use according to claim 16, characterised in that
 components for industrial, optical, electrical,
 sanitary uses and/or components in the automo-
 bile field are produced.